**Query Document**

This document outlines the logical queries performed on the World Energy Consumption dataset using the Pandas library in Python. These queries form the basis of the analysis and visualizations presented in the main report.

**KPI Queries:**

**1. Total Consumption for a Specific Country Over Time**

* **Objective:** To retrieve the time-series energy consumption data for a single country.
* **Logic:**
  + FILTER the DataFrame WHERE Country equals the specified country name (e.g., 'Canada').
  + SELECT all year columns (1965-2023) for that row.
  + TRANSPOSE the data to have years as the index and consumption as the values.

**2. Total Consumption by All Countries for a Specific Year**

* **Objective:** To get a snapshot of energy consumption for all countries in a single year.
* **Logic:**
  + SELECT the Country column and the specified year column (e.g., '1992').
  + REMOVE rows that are regional aggregates to focus only on countries.
  + PLOT Country on the X-axis and the year's consumption value on the Y-axis.

**3. Correlation Between Yearly Consumptions**

* **Objective:** To understand how strongly the energy consumption of one year is related to another across all entities.
* **Logic:**
  + SELECT all year columns (1965-2023).
  + CALCULATE the correlation matrix on the selected data.

**4. Growth Rate of Consumption (1965-2023)**

* **Objective:** To calculate the percentage growth for each country over the entire period.
* **Logic:**
  + For each country row:
  + Growth\_Rate = ((Consumption['2023'] - Consumption['1965']) / Consumption['1965']) \* 100
  + CREATE a new column Growth\_Rate with the calculated value.

**Dashboard Queries:**

**5. Top 10 Countries by Growth Rate**

* **Objective:** To identify the 10 countries with the highest percentage growth in energy consumption from 1965 to 2023.
* **Logic:**
  + EXECUTE the Growth Rate query (Query 4).
  + SORT the resulting DataFrame by Growth\_Rate in descending order.
  + SELECT the top 10 rows.
  + SELECT the Country and Growth\_Rate columns for visualization.

**6. Top 10 Countries by Consumption in 2023**

* **Objective:** To identify the 10 countries with the highest absolute energy consumption in the most recent year.
* **Logic:**
  + FILTER the DataFrame to include only country rows (exclude regions).
  + SELECT the Country and 2023 columns.
  + SORT the DataFrame by the 2023 column in descending order.
  + SELECT the top 10 rows.

**7. Top 10 Regions by Consumption in 2023**

* **Objective:** To identify the 10 regional/global aggregates with the highest energy consumption.
* **Logic:**
  + FILTER the DataFrame to include only region rows.
  + SELECT the Country (acting as Region Name) and 2023 columns.
  + SORT the DataFrame by the 2023 column in descending order.
  + SELECT the top 10 rows.